



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION I  
475 ALLENDALE ROAD  
KING OF PRUSSIA, PA 19406-1415

May 13, 2011

Mr. Thomas P. Joyce  
President and Chief Nuclear Officer  
PSEG Nuclear LLC - N09  
P.O. Box 236  
Hancocks Bridge, NJ 08038

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNIT NOS. 1 AND 2 – NRC  
TEMPORARY INSTRUCTION 2515/183 INSPECTION REPORT  
05000272/2011008 and 05000311/2011008

Dear Mr. Joyce:

On April 29, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Salem Nuclear Generating Station, Unit Nos. 1 and 2, using Temporary Instruction 2515/183, "Followup to the Fukushima Daiichi Nuclear Station Fuel Damage Event." The enclosed inspection report documents the inspection results which were discussed on April 29, 2011, with Mr. Eilola and other members of your staff.

The objective of this inspection was to promptly assess the capabilities of Salem Nuclear Generating Station to respond to extraordinary consequences similar to those that have recently occurred at the Japanese Fukushima Daiichi Nuclear Station. The results from this inspection, along with the results from this inspection performed at other operating commercial nuclear plants in the United States will be used to evaluate the United States nuclear industry's readiness to safely respond to similar events. These results will also help the NRC to determine if additional regulatory actions are warranted.

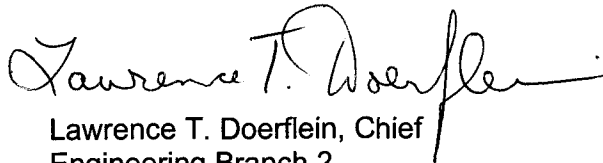
All of the potential issues and observations identified by this inspection are contained in this report. The NRC's Reactor Oversight Process will further evaluate any issues to determine if they are regulatory findings or violations. Any resulting findings or violations will be documented by the NRC in a separate report. You are not required to respond to this letter.

T. Joyce

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Sincerely,

  
Lawrence T. Doerflein, Chief  
Engineering Branch 2  
Division of Reactor Safety

Docket Nos.: 50-272; 50-311  
License Nos.: DPR-70; DPR-75

Enclosure: Inspection Report 05000272/2011008 and 05000311/2011008

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/RA/

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U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos: 50-272, 50-311

License Nos: DPR-70, DPR-75

Report No: 05000272/2011008 and 05000311/2011008

Licensee: PSEG Nuclear LLC (PSEG)

Facility: Salem Nuclear Generating Station, Unit Nos. 1 and 2

Location: P.O. Box 236  
Hancocks Bridge, NJ 08038

Dates: April 5, 2011 through April 29, 2011

Inspector: P. McKenna, Resident Inspector, Salem Units 1 and 2

Approved by: Lawrence T. Doerflein, Chief  
Engineering Branch 2  
Division of Reactor Safety

## **SUMMARY OF FINDINGS**

IR 05000272/2011008 and 05000311/2011008; 04/05/2011 – 04/29/2011; Salem Nuclear Generating Station, Unit Nos. 1 and 2; Temporary Instruction 2515/183 - Followup to the Fukushima Daiichi Nuclear Station Fuel Damage Event.

This report covers an announced Temporary Instruction (TI) inspection. The inspection was conducted by a resident inspector. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

## **INSPECTION SCOPE**

The intent of the TI is to provide a broad overview of the industry's preparedness for events that may exceed the current design basis for a plant. The focus of the TI was on (1) assessing the licensee's capability to mitigate consequences from large fires or explosions on site, (2) assessing the licensee's capability to mitigate station blackout (SBO) conditions, (3) assessing the licensee's capability to mitigate internal and external flooding events accounted for by the station's design, and (4) assessing the thoroughness of the licensee's walkdowns and inspections of important equipment needed to mitigate fire and flood events to identify the potential that the equipment's function could be lost during seismic events possible for the site. If necessary, a more specific followup inspection will be performed at a later date.

## **INSPECTION RESULTS**

All of the potential issues and observations identified by this inspection are contained in this report. The NRC's Reactor Oversight Process will further evaluate any issues to determine if they are regulatory findings or violations. Any resulting findings or violations will be documented by the NRC in a separate report.

03.01 Assess the licensee's capability to mitigate conditions that result from beyond design basis events, typically bounded by security threats, committed to as part of NRC Security Order Section B.5.b issued February 25, 2002, and severe accident management guidelines and as required by Title 10 of the Code of Federal Regulations (10 CFR) 50.54(hh). Use Inspection Procedure (IP) 71111.05T, "Fire Protection (Triennial)," Section 02.03 and 03.03 as a guideline. If IP 71111.05T was recently performed at the facility the inspector should review the inspection results and findings to identify any other potential areas of inspection. Particular emphasis should be placed on strategies related to the spent fuel pool. The inspection should include, but not be limited to, an assessment of any licensee actions to:

Licensee Action	Describe what the licensee did to test or inspect equipment.
<p>a. Verify through test or inspection that equipment is available and functional. Active equipment shall be tested and passive equipment shall be walked down and inspected. It is not expected that permanently installed equipment that is tested under an existing regulatory testing program be retested.</p> <p>This review should be done for a reasonable sample of mitigating strategies/equipment.</p>	<p>Licensee actions included the inventory of equipment (active and passive) utilized for implementation of B.5.b actions and any additional equipment used in Severe Accident Management Guidelines (SAMG). Portable equipment such as pumps and generators were run to verify readiness. The license identified surveillances/tests/preventive maintenance tasks and performance frequencies for other identified B.5.b and SAMG equipment, and reviewed the results of recent tests.</p>
	<p>Describe inspector actions taken to confirm equipment readiness (e.g., observed a test, reviewed test results, discussed actions, reviewed records, etc.).</p>
	<p>The inspector assessed the licensee's capabilities by conducting a review of the licensee's walkdown activities. In addition, the inspector independently walked down and inspected all B.5.b contingency response equipment staged at the site. The type of equipment examined included: interior fire water supply piping and hose stations; portable pump and associated suction and discharge hoses, adapters, and tools; portable AC/DC power supplies; and equipment lockers and associated tools. The inspector evaluated the staging/storage location of B.5.b related equipment to ensure the survivability and availability of equipment. In addition, the inspector also reviewed and discussed with responsible site personnel the results of any field testing of equipment performed to validate its applications in postulated scenarios.</p>

	<p>Discuss general results including corrective actions by licensee.</p> <p>All active and passive B.5.b and SAMG equipment was verified in place by the licensee. The licensee documented minor issues and possible enhancements and entered them into their Corrective Action Program (CAP). The inspector noted one minor issue with the recurring preventive maintenance of B.5.b fire hoses and the licensee entered it into their CAP.</p> <p>Based on the reviews conducted, the inspector concluded that the required mitigation equipment is available and functional.</p>
<p>Licensee Action</p>	<p>Describe the licensee's actions to verify that procedures are in place and can be executed (e.g., walkdowns, demonstrations, tests, etc.).</p>
<p>b. Verify through walkdowns or demonstration that procedures to implement the strategies associated with B.5.b and 10 CFR 50.54(hh) are in place and are executable.</p>	<p>The licensee identified the procedures utilized to mitigate the consequences of a B.5.b related event and severe accidents. Licensee personnel were then dispatched to walk down all applicable procedures to verify the ability of the procedure to be executed. The licensee walked down a total of 41 procedures.</p> <p>Describe inspector actions and the sample strategies reviewed. Assess whether procedures were in place and could be used as intended.</p>



<p>Licensees may choose not to connect or operate permanently installed equipment during this verification.</p> <p>This review should be done for a reasonable sample of mitigating strategies/equipment.</p>	<p>The inspector assessed the licensee's capabilities by conducting a review of the licensee's walkdown activities. In addition, the inspector selected a sample of procedures walked down by the licensee and walked those down with licensed and non-licensed operators to assess: the adequacy and completeness of the procedures/guidelines; familiarity of operators with the procedure objectives and specific guidance; staging and compatibility of equipment; and the practicality of the operator actions prescribed by the procedures, consistent with the postulated scenarios. A few of the procedures selected by the inspector included procedures that had suggestions for improvement as of a result of the 2008 NRC TI-171 B.5.b Phase 2 and 3 Mitigating Strategy inspection.</p>
	<p>Discuss general results including corrective actions by licensee.</p> <p>The licensee verified that all B.5.b and 10 CFR 50.54(hh) procedures were in place and were executable. The licensee documented a few minor issues and possible enhancements and entered them into their CAP. The inspector did not identify any further issues and noted that suggestions for procedural improvement from the 2008 TI-171 inspection had been implemented.</p> <p>Based on these reviews, the inspector concluded that procedures to implement the strategies associated with B.5.b and 10 CFR 50.54(hh) were in place and were executable.</p>
<p>Licensee Action</p>	<p>Describe the licensee's actions and conclusions regarding training and qualifications of operators and support staff.</p>
<p>c. Verify the training and qualifications of operators and the support staff needed to implement the procedures and work instructions are current</p>	<p>The licensee verified that the training and qualifications of operators and all emergency response organization positions were current for activities related to B.5.b and SAMGs. This review identified the number of personnel in each of the required positions and identified the associated required qualifications. Both B.5.b and SAMG training is conducted every two years for operators and every six years for emergency response personnel.</p>

<p>for activities related to Security Order Section B.5.b and severe accident management guidelines as required by 10 CFR 50.54 (hh).</p>	<p>Describe inspector actions and the sample strategies reviewed to assess training and qualifications of operators and support staff.</p> <p>The inspectors examined the training material provided to the site personnel to be tasked with implementing the B.5.b mitigation SAMG strategies. The inspectors assessed the licensee's training and qualification activities by conducting a review of training and qualification materials and records related to B.5.b and SAMG event response.</p> <p>Discuss general results including corrective actions by licensee.</p> <p>No deficiencies were identified, with one exception. The licensee identified one issue regarding the 6-year continuing training frequency requirement for non-operations personnel qualified as a SAMG evaluator (similarly qualified licensed operators receive this training every two years). A CAP notification was written to address this issue.</p> <p>Based upon the inspector's review of formal training and interviews, the inspector concluded that overall B.5.b and SAMG training was appropriate.</p>
<p>Licensee Action</p>	<p>Describe the licensee's actions and conclusions regarding applicable agreements and contracts are in place.</p>
<p>d. Verify that any applicable agreements and contracts are in place and are capable of meeting the conditions needed to mitigate the</p>	<p>Licensee actions included the identification of all applicable contracts and agreements committed to be in place for the mitigation of a B.5.b related event. The licensee verified that the contracts and agreements were current, and documented whether or not the contracts/agreements were capable of meeting the mitigation strategy.</p>

<p>consequences of these events.</p> <p>This review should be done for a reasonable sample of mitigating strategies/equipment.</p>	<p>For a sample of mitigating strategies involving contracts or agreements with offsite entities, describe inspector actions to confirm agreements and contracts are in place and current (e.g., confirm that offsite fire assistance agreement is in place and current).</p> <p>The inspector verified that the licensee had in place current memoranda of understanding (MOU) or a formal agreement with off-site agencies to provide assistance in mitigation strategies. The inspector selected a sample of MOUs for detailed review to verify consistency between the MOU and the associated mitigation strategy. Additionally, the inspector interviewed licensee personnel to discuss local and state emergency response.</p> <p>Discuss general results including corrective actions by licensee.</p> <p>No deficiencies were identified. The inspector concluded that applicable agreements and contracts are in place and are capable of meeting the conditions needed to mitigate the consequences of these events.</p>
<p>Licensee Action</p>	<p>Document the corrective action report number and briefly summarize problems noted by the licensee that have significant potential to prevent the success of any existing mitigating strategy.</p>

e. Review any open corrective action documents to assess problems with mitigating strategy implementation identified by the licensee. Assess the impact of the problem on the mitigating capability and the remaining capability that is not impacted.	Several CAP notifications and orders were reviewed during this inspection, and are listed in the attachment to this report. The inspector concluded that there was not a significant adverse impact on the B.5.b strategy mitigating capabilities.
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03.02 Assess the licensee's capability to mitigate station blackout (SBO) conditions, as required by 10 CFR 50.63, "Loss of All Alternating Current Power," and station design, is functional and valid. Refer to TI 2515/120, "Inspection of Implementation of Station Blackout Rule Multi-Plant Action Item A-22" as a guideline. It is not intended that TI 2515/120 be completely reinspected. The inspection should include, but not be limited to, an assessment of any licensee actions to:

Licensee Action	Describe the licensee's actions to verify the adequacy of equipment needed to mitigate an SBO event.
a. Verify through walkdowns and inspection that all required materials are adequate and properly staged, tested, and maintained.	<p>The licensee reviewed procedures used for mitigating SBO events to identify the required equipment for walkdowns. The licensee then conducted walkdowns of this equipment to ensure it was adequate and properly staged. Equipment included but was not limited to the SBO air compressor, portable diesel generator battery chargers, and the Salem Unit 3 gas turbine generator.</p> <p>Describe inspector actions to verify equipment is available and useable.</p>

	<p>The inspector assessed the licensee's capability to mitigate SBO conditions by conducting a review of the licensee's walkdown activities. In addition, the inspector selected a sample of equipment utilized/required for mitigation of a SBO and conducted independent walkdowns of that equipment to verify that the equipment was properly aligned and staged.</p>
	<p>Discuss general results including corrective actions by licensee.</p>
	<p>The licensee and inspector reviews verified that SBO equipment was ready to respond to a SBO condition. Minor discrepancies were identified, and the licensee initiated the appropriate CAP notifications. They are listed in the Supplemental Information Attachment of this report. The inspector reviewed the associated CAP notifications, and determined the licensee's initial response, including their assessment and prioritization were appropriate.</p>
Licensee Action	<p>Describe the licensee's actions to verify the capability to mitigate an SBO event.</p>
b. Demonstrate through walkdowns that procedures for response to an SBO are executable.	<p>The licensee performed a walkdown of the procedures used to combat an SBO condition to demonstrate that the procedures were executable.</p>
	<p>Describe inspector actions to assess whether procedures were in place and could be used as intended.</p>
	<p>The inspector assessed the licensee's SBO capabilities by conducting a review of the licensee's walkdown activities. In addition, the inspector selected several sections of the procedures walked down by the licensee and conducted walkdowns to independently verify the licensee's conclusions.</p>

	Discuss general results including corrective actions by licensee.
	The licensee documented minor issues and possible enhancements and entered them into their CAP. No additional deficiencies were identified by the inspector.

03.03 Assess the licensee's capability to mitigate internal and external flooding events required by station design. Refer to IP 71111.01, "Adverse Weather Protection," Section 02.04, "Evaluate Readiness to Cope with External Flooding" as a guideline. The inspection should include, but not be limited to, an assessment of any licensee actions to verify through walkdowns and inspections that all required materials and equipment are adequate and properly staged. These walkdowns and inspections shall include verification that accessible doors, barriers, and penetration seals are functional.

Licensee Action	Describe the licensee's actions to verify the capability to mitigate existing design basis flooding events.
a. Verify through walkdowns and inspection that all required materials are adequate and properly staged, tested, and maintained.	The licensee performed walkdowns and inspections of permanent plant equipment to ensure that accessible doors, barriers, penetration seals, drains, and sumps were functional. The licensee verified by walkdown and inspection that all required material and portable equipment was properly staged. Regarding the portable equipment, the licensee's walkdowns ensured it was properly staged and would remain functional following a safe shutdown earthquake event. The rooms and structures that were considered in the review included those required by design basis to mitigate the consequences of a flooding event, both internal and external.
	Describe inspector actions to verify equipment is available and useable. Assess whether procedures were in place and could be used as intended.

	<p>The inspector assessed the licensee's capabilities to mitigate flooding by conducting a review of the licensee's walkdown activities. In addition, the inspector conducted independent walkdowns of selected flood mitigation equipment to assess the licensee's flood mitigating capabilities. The inspector also conducted a walkdown of several flood penetration seals with licensee staff to verify the licensee's procedure and inspection criteria. The licensee's flood mitigation procedures were reviewed to verify usability. The inspector assessed these procedures to be usable as intended.</p>
	<p>Discuss general results including corrective actions by licensee.</p>
	<p>The inspector concluded that all required materials are adequate and properly staged, tested, and maintained to respond to an internal or external flood within the plant's design basis. While no operability or significant concerns were identified, the licensee and the inspector identified several minor issues, which the licensee entered into their CAP. The associated CAP notifications are listed in the Supplemental Information Attachment of this report. The inspector reviewed the associated CAP notifications and determined that the licensee's initial responses, including their assessment and prioritization, were appropriate.</p>

<p>03.04 Assess the thoroughness of the licensee's walkdowns and inspections of important equipment needed to mitigate fire and flood events to identify the potential that the equipment's function could be lost during seismic events possible for the site. Assess the licensee's development of any new mitigating strategies for identified vulnerabilities (e.g., entered it in to the corrective action program and any immediate actions taken). As a minimum, the licensee should have performed walkdowns and inspections of important equipment (permanent and temporary) such as storage tanks, plant water intake structures, and fire and flood response equipment; and developed mitigating strategies to cope with the loss of that important function. Use IP 71111.21, "Component Design Basis Inspection," Appendix 3, "Component Walkdown Considerations," as a guideline to assess the thoroughness of the licensee's walkdowns and inspections.</p>	
<p>Licensee Action</p>	<p>Describe the licensee's actions to assess the potential impact of seismic events on the availability of equipment used in fire and flooding mitigation strategies.</p>

<p>a. Verify through walkdowns that all required materials are adequate and properly staged, tested, and maintained.</p>	<p>The licensee developed an attribute list for the inspection of important equipment needed to mitigate fire and flood events to identify the potential that the equipment's function could be lost during seismic events possible for the site. The licensee then performed walkdowns and inspections of temporary and permanent plant equipment needed to mitigate fire and flood events to ensure that the failure/rupture of these or surrounding structures, systems, or components would not degrade the capability of the credited system to perform design basis functions.</p> <p>For portable equipment, the licensee's assessment included reviewing potential vulnerabilities related to associated procedures for equipment usage and equipment storage (to protect it from a seismic event). Regarding permanently installed fire protection equipment, the licensee's review evaluated its seismic classification and associated procedures used to operate the system for fighting fires.</p>
	<p>Describe inspector actions to verify equipment is available and useable. Assess whether procedures were in place and could be used as intended.</p>
	<p>The inspector conducted multiple walkdowns, both independently and in conjunction with licensee personnel, of important equipment needed to mitigate fire and flood events to identify the potential that the equipment's function could be lost during a seismic event. This equipment included, but was not limited to:</p> <ul style="list-style-type: none"> <li>• all major B.5.b contingency response equipment staged throughout the site;</li> <li>• portions of the installed fire protection and suppression equipment in various plant areas;</li> <li>• the installed fire pumps and their controls; and</li> <li>• watertight doors, roof hatches and floor plugs at the plant's intake structure and other exterior/building areas.</li> </ul> <p>The inspector reviewed the licensee's flood and fire mitigation procedures to assess usability. The results of the inspector's reviews aligned with the licensee's conclusions that there were a number of seismic vulnerabilities, as described below. The inspector determined that the licensee meets the current licensing and design basis for B.5.b, fire protection, and flooding.</p>



	Discuss general results including corrective actions by licensee. Briefly summarize any new mitigating strategies identified by the licensee as a result of their reviews.
	<p>The licensee's reviews for this issue determined that non safety-related structures, systems, and components, in general, were not considered to be seismically qualified. This included the majority of the fire protection system, including the installed fire pumps and the fresh water storage tanks. The licensee also determined that firefighting equipment staged to respond to B.5.b events was stored in buildings that were not seismically qualified, as a seismic event and B.5.b event have not previously been assumed to occur coincidentally. The licensee also determined that the portable fire protection equipment storage areas in the Nuclear Operations Support Facility and the Turbine Building were also not seismically qualified.</p> <p>The inspector confirmed that the vulnerabilities were properly entered and characterized in the CAP. Potential corrective actions and/or any associated mitigating strategies were under review at the close of this inspection.</p>

## Meetings

### 4OA6 Exit Meeting

The Inspector presented the inspection results to Mr. Eilola and other members of licensee management at the conclusion of the inspection on April 29, 2011. Proprietary information reviewed by the inspector during the inspection was returned to the licensee. The Inspector verified the inspection report does not contain proprietary information.

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee

H. Berrick, Regulatory Assurance  
E. Eilola, Plant Manager  
C. Fricker, Site Vice President  
J. Garecht, Operations Director  
A. Johnson, Manager Design Engineering  
J. Kandasamy, Manager Salem Regulatory Assurance  
J. Konovalchick, Operations Shift Manager  
E. Powell, Shift Operations Manager  
L. Rajkowski, Engineering Director  
B. Thomas, Senior Compliance Engineer  
E. Villar, Regulatory Assurance

#### Other

E. Rosenfeld, New Jersey Department of Environmental Protection

### LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety but rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

CAP Notifications with an asterisk (\*) indicate the document was written as a result of the inspection effort.

#### **03.01 Assess the licensee's capability to mitigate conditions that result from beyond design basis events**

##### Procedures:

FP-AA-0003, Safe Set-up and Operation of the Emergency Skid Pump, Rev. 3  
FP-AA-0020, Emergency Resource Information, Rev. 0  
SC.MD-AB.ZZ-0001, Installation of Temporary 4kV Power Cables to CCW/RHR Motors, Rev. 6  
SC.OP-AM.TSC-0001, Manually Depressurizing Steam Generators Utilizing MS10s, Rev. 1  
SC.OP-AM.TSC-0002, Alternate Primary Cooling to ECCS, Rev. 3  
SC.OP-AM.TSC-0004, Temporary Cooling Water to Salem Diesel Generators, Rev. 2

Attachment

SC.OP-AM.TSC-0005, Manual Operation of the Turbine Driven AFW Pump, Rev. 1  
SC.OP-AM.TSC-0007, Emergency Fill to RWST/AFWST, Rev. 4  
SC.OP-AM.TSC-0008, Emergency Fill to Spent Fuel Pool, Rev. 5  
SC.OP-AM.TSC-0009, Flooding Containment Utilizing Portable Diesel Driven Pump, Rev. 1  
SC.OP-AM.TSC-0010, Use of Portable Spray to Reduce Fission Product Releases, Rev. 1  
SC.OP-AM.TSC-0012, Feeding Steam Generators Utilizing Portable Diesel Pump, Rev. 1  
SC.OP-AM.TSC-0013, Service Water System Cross-Connect Alignment, Rev. 0  
SC.OP-AM.TSC-1000, Salem EDMG Initial Plant Response, Rev. 0  
SC.OP-AM.TSC-1001, Salem EDMG Initial Damage Assessment, Rev. 0  
SC.OP-PT.SF-0002, Portable Spent Fuel Pit Pump Full Flow Test, Rev. 5  
SH.OP-AM.TSC-0001, Supplemental Severe Accident Management Guideline, Rev. 8

Completed Tests:

30201658, 1-Year Spent Fuel Pit Portable Pump Full Flow Test, 3/22/11  
30190337, Annual Godwin Pump PM, 3/19/11  
30198502, B.5.b Equipment Inventory, 3/19/11  
30204142, 3-Month SFP Portable Pump Functional Check, 3/22/11

Calculations/Evaluations:

80096177, B.5.b Scenario Calculation, Rev. 2

Notifications:

20500816, FP-AA-2010 Emergency Resource Information Procedure, 3/19/11  
20501367, Use of Vents in Procedure SC.OP-AM.TSC-0013 Requires Scaffolding, 3/21/11  
20501445, SC.OP-AM.TSC-0002 Alternate Primary Cooling to ECCS Enhancement, 3/21/11  
20501458, SC.OP-AM.TSC-0013 SW Cross-Connect Alignment Procedure Change, 3/21/11  
20501464, SC.OP-AM.TSC-0008 Emergency Fill to Spent Fuel Pool Enhancement, 3/21/11  
20501465, SC.OP-AM.TSC-0008 Emergency Fill to Spent Fuel Pool Enhancement, 3/21/11  
20501467, SC.OP-AM.TSC-0004 Temporary Cooling Water to Salem EDGs Change, 3/21/11  
20501478, Forklift Qualifications Needed for B.5.b Mitigating Strategies, 3/21/11  
20501526, B.5.b Godwin Pump is Shared between Salem and Hope Creek, 3/21/11  
20501536, Hose Length for Flooding Containment - Procedure SC.OP-AM.TSC-0009, 3/22/11  
20501655, SC.OP-AM.ZZ-0001 Severe Accident Guidelines Procedure Enhancement, 3/22/11  
20501826, Emergency Fill to Spent Fuel Pool Validation Paperwork, 3/23/11  
20500815, FP-AA-0003 Safe Setup and Operation of Emergency Skid Pump Change, 3/19/11  
20501444, B.5.b Hose Ratings for Feeding Steam Generators, 3/21/11  
20501034, IER 11-1 Fukushima Daiichi Earthquake Actions, 3/17/11  
20500886, B.5.b Pump out of Service Due to Degraded Fuel, 3/18/11  
20500977, B.5.b Equipment Transportation, 3/18/11  
20501223, B.5.b Equipment Labeling, 3/19/11  
20501267, B.5.b Storage Area Cleanliness, 3/21/11  
20501463, B.5.b Hose Ratings, 3/21/11  
20501470, B.5.b Equipment Storage Location, 3/21/11  
20501476, B.5.b Inventory List Enhancement, 3/21/11  
20501477, B.5.b Generators Batteries Recurring Tasks, 3/21/11

20501502, Satellite Phone Testing, 3/22/11  
20501632, Supplemental SAMG Inventory Items Not in Stock, 3/22/11  
\*20507832, B.5.b Fire Hose Hydrostatic Test Procedures, 4/26/11

Other:

70085974, FASA Self-Assessment Report of Site Specific Implementation of B.5.b Phase 2&3 Mitigating Strategies, 8/24/08  
70120777, IER 11-1 Fukushima Daiichi Earthquake Actions, 3/24/11  
MOU Between PSEG Nuclear, LLC and the Kent County Department of Emergency Services for Radiological Emergency Preparedness, 12/15/10  
MOU Between PSEG Nuclear, LLC and the Salem County Department of Emergency Services for Radiological Emergency Preparedness, 3/30/10  
MOU Between PSEG Nuclear, LLC, New Castle County, Delaware and the Delaware Emergency Management Agency, 4/23/10  
MOU Between PSEG, Nuclear, LLC and the Cumberland County Office of Emergency Management, 9/10/10  
MOU Between Salem - Hope Creek Generating Stations and the State of Delaware Department of Safety and Homeland Security Delaware Emergency Management Agency, 4/23/10  
MOU Between Wilmington Fire Department and PSEG, Nuclear, LLC for Radiological Emergency Preparedness, 1/4/11  
SC.EP-AM.ZZ-0001, Severe Accident Guidelines, Rev. 0

**03.02 Assess the licensee's capability to mitigate station blackout (SBO) conditions**

Procedures:

ER-AA-201, Emergency Diesel Generator Reliability Program, Rev. 0  
ES-45.0003, Station Blackout Endurance Calculation, Rev. 1  
S2.OP-AB.LOOP-0001, Loss of Off-Site Power, Rev. 23  
S2.OP-SO.500-0125, SBO Diesel – Vital Battery Chargers, Rev. 0  
S3.OP-PT.JET-0001, Dead Bus Bootstrap Start Test, Rev. 14  
S3.OP-SO.JET-0001, Gas Turbine Operation, Rev. 32  
SC.DE-PS.ZZ-0040, Salem Station Blackout Program, Rev. 3  
SC.OP-AB.ZZ-0001, Adverse Environmental Conditions, Rev. 13  
SC.OP-SO.500-0125, SBO Diesel – Miscellaneous Switchyard, Rev. 1

Completed Tests:

30204889, Switchyard Generator 3 Month PM, 03/22/11  
30203189, B.5.b Equipment Inventory, 03/19/11

Calculations/Evaluations:

314204, Station Blackout Analysis for Salem Generating Station Unit Nos. 1 and 2, Rev. 5

Notifications:

20501034, IER 11-1 Fukushima Daiichi Earthquake Actions, 3/17/11  
20501314, SC.OP-AM.TSC-0003 Alt Power Supply to Battery Chargers Enhancement, 3/22/11  
20501477, SBO Vital Battery Charger Generators Batteries Recurring Tasks, 3/21/11  
20501525, SC.OP-AM.TSC-0003 Alt Power Supply to Battery Chargers Enhancement, 3/21/11  
20501625, SBO Vital Battery Charger DG Battery has Corroded Terminals, 3/22/11  
20501630, SBO Vital Battery Charger Diesel Generators Fluid Checks, 3/22/11  
20501760, SC.OP-SO.500-0125 SBO Diesel – Miscellaneous Switchyard Revision, 3/23/11  
20501944, S1(2).OP-AB.LOOP-0001 LOOP Power Procedure Revision Request, 3/24/11  
20502267, SC.OP-SO.SA-0002 Temporary Station Air Compressor Operation Revision, 3/24/11  
20502855, SC.OP-SO.MET-0001 MET Shelter EDG Operation Procedure Revision, 3/29/11

Other:

70120777, IER 11-1 Fukushima Daiichi Earthquake Actions, 3/24/11

**03.03 Assess the licensee's capability to mitigate internal and external flooding events required by station design**

Procedures:

NC.OP-DG.ZZ-0002, Severe Weather Guide, Rev. 7  
SC.FP-SV.FBR-0026, Flood and Fire Barrier Penetration Seal Inspection, Rev. 4  
SC.MD-PM.ZZ-0036, Watertight Door Inspection and Repair, Rev. 5  
SC.OP-AB.ZZ-0001, Adverse Environmental Conditions, Rev. 13

Drawings:

602105, Unit 1 and 2 Penetration Seal Locations Room Numbering Floor Plan, Rev. 1  
602797, Unit 2 Penetration Seal Locations Room 25445 #23 AFW Pump, Rev. 2  
602798, Unit 2 Penetration Seal Locations Room 25438-SW Piping Room No. 1, Rev. 1  
602799, Unit 2 Penetration Seal Locations Room 25438-SW Piping Room No. 2, Rev. 1  
604709, Unit 2 Penetration Seal Locations Room 25438-SW Piping Room No. 1, Rev. 0  
604710, Unit 2 Penetration Seal Locations Room 25439-SW Piping Room No. 2, Rev. 0  
604726, Unit 2 Penetration Seal Locations Room 25440-SW Piping Room No. 3, Rev. 0

Notifications:

20503202, SWIS Door, S1SWI-1DOOR-SW-8 has Non-watertight Lock Set, 4/1/11  
20503545, Access Plate Installation Nonconforming with Drawing and Standards, 4/4/11  
20501034, IER 11-1 Fukushima Daiichi Earthquake Actions, 3/17/11  
20503011, Minor Watertight Door Defects, 4/1/11  
20503012, Watertight Door Gasket Painted, 4/1/11  
20503203, Watertight Door Gasket Loose, 4/1/11  
20503266, Watertight Door Gasket Painted, 4/1/11  
20503311, Watertight Door Gasket Loose, 4/4/11  
20503547, Service Water Bay Roof Hatch Minor Leak, 4/4/11

20503549, Service Water Bay Roof Hatch Minor Leak, 4/4/11  
20505293, OP-AA-108-111-1001 Procedure Revision, 4/15/11  
\*20507835, Label Request Penseal N-25439-011, 4/26/11  
\*20507836, Label Request Penseal N-25439-012, 4/26/11  
\*20507838, Label Request Penseal W-25445-004, 4/26/11  
\*20507839, Label Request Penseal S-25445-003, 4/26/11

Other:

70120777, IER 11-1 Fukushima Daiichi Earthquake Actions, 3/24/11

**03.04 Assess the thoroughness of the licensee's walkdowns and inspections of important equipment needed to mitigate fire and flood events to identify the potential that the equipment's function could be lost during seismic events**

Procedures:

NC.FP-PM.ZZ-0007, Firefighting and Rescue Equipment Inventory, Rev. 5  
S1.FP-SV.FS-0022, Class 1 Fire Hose Station Visual Inspection, Rev. 5  
S1.FP-SV.FS-0066, Relay Room Halon Cylinders Volume and Pressure Check, Rev. 8  
S2.FP-SV.FS-0022, Class 1 Fire Hose Station Visual Inspection, Rev. 4  
S2.FP-SV.FS-0066, Relay Room Halon Cylinders Volume and Pressure Check, Rev. 7

Completed Tests:

30202903, 92-Day Preventative Maintenance on Fire Protection Equipment, 4/13/11

Drawings:

205222, Salem Nos. 1 and 2 Fire Protection – No. 2 Unit TGA, Service Building, Administration Building, Switch Yard, Foam Tank House, Sh. 4, Rev. 59  
205222, Salem Nos. 1 and 2 Fire Protection – No. 1 Unit Aux Building, Drumming Area, Containment, Yard and Intake Structure, Sh. 1, Rev. 61  
205222, Salem Nos. 1 and 2 Fire Protection – No. 1 Unit TGA, Service Building, Administration Building, Switch Yard, Foam Tank House, Sh. 3, Rev. 59  
205222, Salem Nos. 1 and 2 Fire Protection – No. 2 Unit Aux Building, Drumming Area, Containment, Yard and Intake Structure, Sh. 2, Rev. 60  
205242, Unit 1 Service Water – Nuclear Area, Rev. 93  
205249, Salem Units 1 and 2 Fuel Oil, Sh. 1, Rev. 42  
205249, Salem Units 1 and 2 Fuel Oil, Sh. 2, Rev. 34  
205249, Salem Units 1 and 2 Fuel Oil, Sh. 3, Rev. 29  
205342, Unit 1 Service Water – Nuclear Area, Rev. 76  
218263, Salem Nos. 1 and 2 Aux Building Fire Protection Piping, Sh. 1, Rev. 31  
218263, Salem Nos. 1 and 2 Aux Building Fire Protection Piping, Sh. 2, Rev. 1  
218263, Salem Nos. 1 and 2 Aux Building Fire Protection Piping, Sh. 3, Rev. 0

Notifications:

20501034, IER 11-1 Fukushima Daiichi Earthquake Actions, 3/17/11  
20504382, B.5.b Equipment Storage Area Seismic Improvements, 4/10/11  
20505293, Revise SC.OP-AB.ZZ-0001, 4/15/11  
\*20508146, IER 11-1 Section 4 Tracking Requirement, 4/28/11

Other:

600256, Unit 2 Carbon Dioxide Fire Protection System, Rev. 18  
600257, Unit 1 Carbon Dioxide Fire Protection System, Rev. 19  
70120777, IER 11-1 Fukushima Daiichi Earthquake Actions, 3/24/11  
Individual Plant Examination Report Salem Generating Station Unit Nos. 1 and 2, 7/30/93  
Salem Generating Station Individual Plant Examination for External Events, 1/96

**LIST OF ACRONYMS USED**

ADAMS	Agencywide Documents Access and Management System
CAP	Corrective Action Program
CFR	Code of Federal Regulations
MOU	Memorandum of Understanding
NRC	Nuclear Regulatory Commission
SAMG	Severe Accident Management Guidelines
SBO	Station Blackout
TI	Temporary Instruction